

Session: 2021 – 2025

**Submitted by:**

Muhammad Hamad Hassan

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**Supervised by:**

Mr. Samyan Qayyam Wahla

Department of Computer Science

**University of Engineering and Technology**

**Lahore Pakistan**

**Problem1:** Meet Multiplication

As I cannot find any error in the approach of the friend

**Problem 2:** Social Friends

**[a] Pseudocode**

1.function friendSlower(arr)

2.Result=[]

3.for i=1 to n do

4. for j=i+1 to n

5. if arr[j][0]<arr[i][1]

6. result.append(i+1,j+1)

7. end if

8. if arr[j][1]==arr[j][0]

9. result.append(i+1,j+1)

10. end for

11.end for

12.Return result

**Description**

In the first iteration the i value is 0 and j value is 1 then check the first condition. The arr[j][0] has 2 and arr[i][1] has value 4 as the condition true then it combine the pair into the array and continue till the I value not less then n

**Correctness**

**Initialization:**

The first loop start with 0 index and second with 1 index

**Maintenance:**

The loop iterate and check the condition continoue till the condition false

**Termination:**

The first loop terminate when i value reached under the n value

**Runtime**

1. 1
2. 1
3. n
4. n+(n+1)+(n+2)+…
5. 1
6. 1
7. 1
8. 1
9. 1
10. 1
11. 1
12. 1

Total Time

T(n)=1+1n×n+(n+1)+(n+2)+…+1+1+1+1+1+1+1+1+1+1

T(n)=O(n×n2)

**T(n)= O(n2)**

**[b]Pseudocode**

1.function friendFaster(arr)

2.result=[]

3.for i=1 to n-1 do

4. if arr[i+1][0]<arr[i][1]

5. result.append(i+1,i+2)

6. end if

7. if arr[i][1]==arr[i+1][0]

8. result.append(i+1,i+2)

9. end if

10. if arr[i+1][0]==arr[i][1]

11. result.append(i+2,i+3)

12. end if

13.end for

14.Return result

**Description**

In the first iteration the i value is 0 and j value is 1 then check the first condition. The arr[j][0] has 2 and arr[i][1] has value 4 as the condition true then it combine the pair into the array and continue till the I value not less then n

**Correctness**

**Initialization**:

The loop start with 0 index.

**Maintenance**:

The loop iterate and check the condition continoue till the condition false

**Termination**:

The loop terminate when i value reached under the n value

**Runtime**

1. 1
2. 1
3. n
4. 1
5. 1
6. 1
7. 1
8. 1
9. 1
10. 1
11. 1
12. 1
13. 1
14. 1

Total Time

T(n)=1+1+n+1+1+1+1+1+1+1+1+1+1

T(n)=O(n)